WHAT IS CLAIMED CLAIM IS:

1. A method of manufacturing a component that will, in use, experience a thermal load and will be operated at a mean operating temperature, the method comprising:

selecting a material having a coefficient of thermal expansion having a zero-crossing at a first temperature;

manufacturing the component using the selected material at a second temperature, wherein the first temperature is between the second temperature and the mean operating temperature, so as to minimize deformation of the component at the mean operating temperature.

2. A method according to claim 1, wherein the first temperature is equal to the average of the second temperature and the mean operating temperature.

3. A method according to claim 1, wherein the integral of the coefficient of thermal expansion of the selected material from the second temperature to the mean operating temperature is substantially zero.

4. A method according to claim 1, wherein the selected material is a material having a low coefficient of thermal expansion.

5. A method according to claim 1, wherein the selected material is a material having a substantially zero coefficient of thermal expansion.

6. A method according to claim 5, wherein the selected material is a glass or a glass-ceramic comprising additives to provide the coefficient of thermal expansion.

7. A method according to claim 1, wherein the second temperature is adjusted to enable use of a material having a coefficient of thermal expansion zero-crossing temperature that is fixed or of a limited variability.

8. A component for use in a lithographic apparatus, the apparatus being configured to project a patterned beam of radiation onto a target portion of a substrate, wherein the component is made of a material having a coefficient of thermal expansion having a zero-crossing at a first temperature between a second temperature at which the component is manufactured and a mean operating temperature of the component.

9. A component according to claim 8, wherein the first temperature is equal to the average of the second temperature and the mean operating temperature.

10. A component according to claim 8, wherein the integral of the coefficient of thermal expansion of the material from the second temperature to the mean operating temperature is substantially zero.

11. A component according to claim 8, wherein the material is a material having a low coefficient of thermal expansion.

12. A component according to claim 8, wherein the material is a material having a substantially zero coefficient of thermal expansion.

13. A component according to claim 8, wherein the component is an optical component in at least one of a radiation system and a projection system of the lithographic apparatus.

14. A component according to claim 13, wherein the optical component is an optical element in the at least one of the radiation system and the projection system that experiences in use a highest thermal load.

15. A component according to claim 13, wherein the optical component is a mirror.

16. A component according to claim 15, wherein the mirror comprises a substrate manufactured from a material having a low coefficient of thermal expansion and a multilayer stack.

17. A component according to claim 15, wherein the mirror comprises a substrate manufactured from a material having a substantially zero coefficient of thermal expansion and a multilayer stack.

18. A lithographic apparatus, comprising:

a radiation system configured to provide a beam of radiation;

a support configured to support a patterning device, the patterning device configured to pattern the beam according to a desired pattern;

a substrate table configured to hold a substrate;

a projection system configured to project the patterned beam of radiation onto a target portion of the substrate, wherein at least one component in the apparatus that in use experiences a thermal load is made of a low coefficient of thermal expansion material having a coefficient of thermal expansion having a zero-crossing at a temperature between a manufacturing temperature and a mean operating temperature of the at least one component.

19. A device manufacturing method, comprising:

providing a substrate that is at least partially covered by a layer of radiation-sensitive material;

providing a beam of radiation using a radiation system;

using patterning means to endow the beam of radiation with a pattern in its cross-section;

projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material using a projection system, wherein at least one component in at least one of the radiation system and the projection system experiencing a thermal load has a mean operating temperature and is made of a low coefficient of thermal expansion material such that a coefficient of thermal expansion zero-crossing temperature of the material is between a manufacturing temperature of the at least one component and the mean operating temperature.